

What is claimed is:

1. A commutator,  
comprising:  
a plurality of commutating pieces having outer faces; and  
a plurality of sliding members being fixed on the outer faces of said  
commutating pieces, said sliding members including carbon nano fibers  
whose outermost layers have electric conductivity.
2. The commutator according to claim 1,  
wherein said sliding members include graphite.
3. A commutator,  
comprising:  
a plurality of commutating pieces having outer faces; and  
a plurality of sliding members being fixed on the outer faces of said  
commutating pieces, said sliding members including carbon nano tubes  
whose outermost layers have electric conductivity.
4. The commutator according to claim 3,  
wherein said sliding members include graphite.
5. A commutator,  
comprising:  
a plurality of commutating pieces having outer faces; and  
a plurality of combined sliding sections being fixed on the  
outerface of said commutating pieces, each of said combined sliding  
section including a first sliding member and a second sliding member,  
wherein the first sliding members include carbon nano fibers whose

outermost layers have electric conductivity, and

the second sliding members include no carbon nano fibers, the second sliding members are respectively integrated with the first sliding members, the second sliding members are fixed on the outer faces of said commutating pieces.

6. The commutator according to claim 5,

wherein said combined sliding sections further include third sliding members, which include no carbon nano fibers and which are respectively integrated with the first sliding members.

7. The commutator according to claim 5,

wherein said sliding members include graphite.

8. A commutator,

comprising:

a plurality of commutating pieces having outer faces; and

a plurality of combined sliding sections being fixed on the outerface of said commutating pieces, each of said combined sliding section including a first sliding member and a second sliding member,

wherein the first sliding members include carbon nano tubes whose outermost layers have electric conductivity, and

the second sliding members include no carbon nano tubes, the second sliding members are respectively integrated with the first sliding members, the second sliding members are fixed on the outer faces of said commutating pieces.

9. The commutator according to claim 8,

wherein said combined sliding sections further include third sliding

members, which include no carbon nano tubes and which are respectively integrated with the first sliding members.

10. The commutator according to claim 8

wherein said sliding members include graphite.

11. A commutator,

comprising:

a plurality of commutating pieces including electric conductive parts, which have sliding faces on which a brush slides; and

a plurality of sliding members including an electric conductive metal and carbon nano fibers whose outermost layers have electric conductivity, said sliding members being fixed on the sliding faces of the electric conductive parts.

12. The commutator according to claim 11,

wherein said sliding members include graphite.

13. A commutator,

comprising:

a plurality of commutating pieces including electric conductive parts, which have sliding faces on which a brush slides; and

a plurality of sliding members including an electric conductive metal and carbon nano tubes whose outermost layers have electric conductivity, said sliding members being fixed on the sliding faces of the electric conductive parts.

14. The commutator according to claim 13,

wherein said sliding members include graphite.

15. An electric rotary device,  
having a commutator, which comprises:  
a plurality of commutating pieces having outer faces; and  
a plurality of sliding members being fixed on the outer faces of said  
commutating pieces, said sliding members including carbon nano fibers  
whose outermost layers have electric conductivity.

16. An electric rotary device,  
having a commutator, which comprises:  
a plurality of commutating pieces having outer faces; and  
a plurality of sliding members being fixed on the outer faces of said  
commutating pieces, said sliding members including carbon nano tubes  
whose outermost layers have electric conductivity.

17. An electric rotary device,  
having a commutator, which comprises:  
a plurality of commutating pieces including electric conductive  
parts, which have sliding faces on which a brush slides; and  
a plurality of sliding members including an electric conductive  
metal and carbon nano fibers whose outermost layers have electric  
conductivity, said sliding members being fixed on the sliding faces of the  
electric conductive parts.

18. An electric rotary device,  
having a commutator, which comprises:  
a plurality of commutating pieces including electric conductive  
parts, which have sliding faces on which a brush slides; and  
a plurality of sliding members including an electric conductive  
metal and carbon nano tubes whose outermost layers have electric

conductivity, said sliding members being fixed on the sliding faces of the electric conductive parts.